

Bonneville Transmission

**Joint Legislative Committee on
Energy Supply and Conservation**

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Bonneville Power Administration

- BPA is an agency in the US Dept of Energy
- BPA owns and operates 75% of the Northwest's high voltage electric grid.
- 300,000 square miles in OR, WA, ID, MT and sections of WY, NV, UT and CA.
- 15,190 miles of transmission line, 259 substations.
- Peak load of about 30,000 megawatts.
- \$800 million a year in revenues.
- BPA voluntarily operates under FERC's Open Access Transmission Tariff.

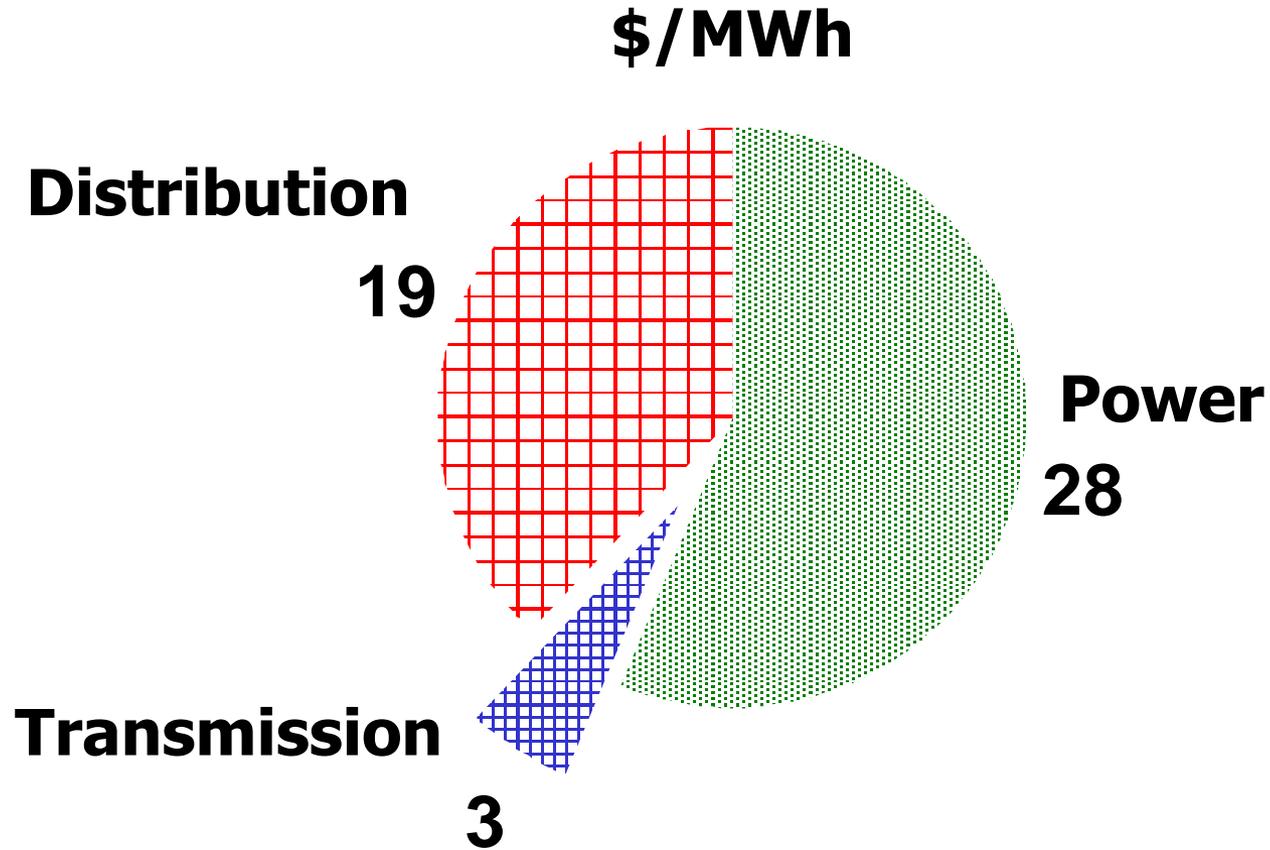


Why Transmission?

- Deliver power from remote generators to customer
- Enhance reliability of electric supply
- Allow generation reserve sharing
- Allow economic energy exchange
- Reduce environmental impacts of production
- Transmit power for those that do not own transmission



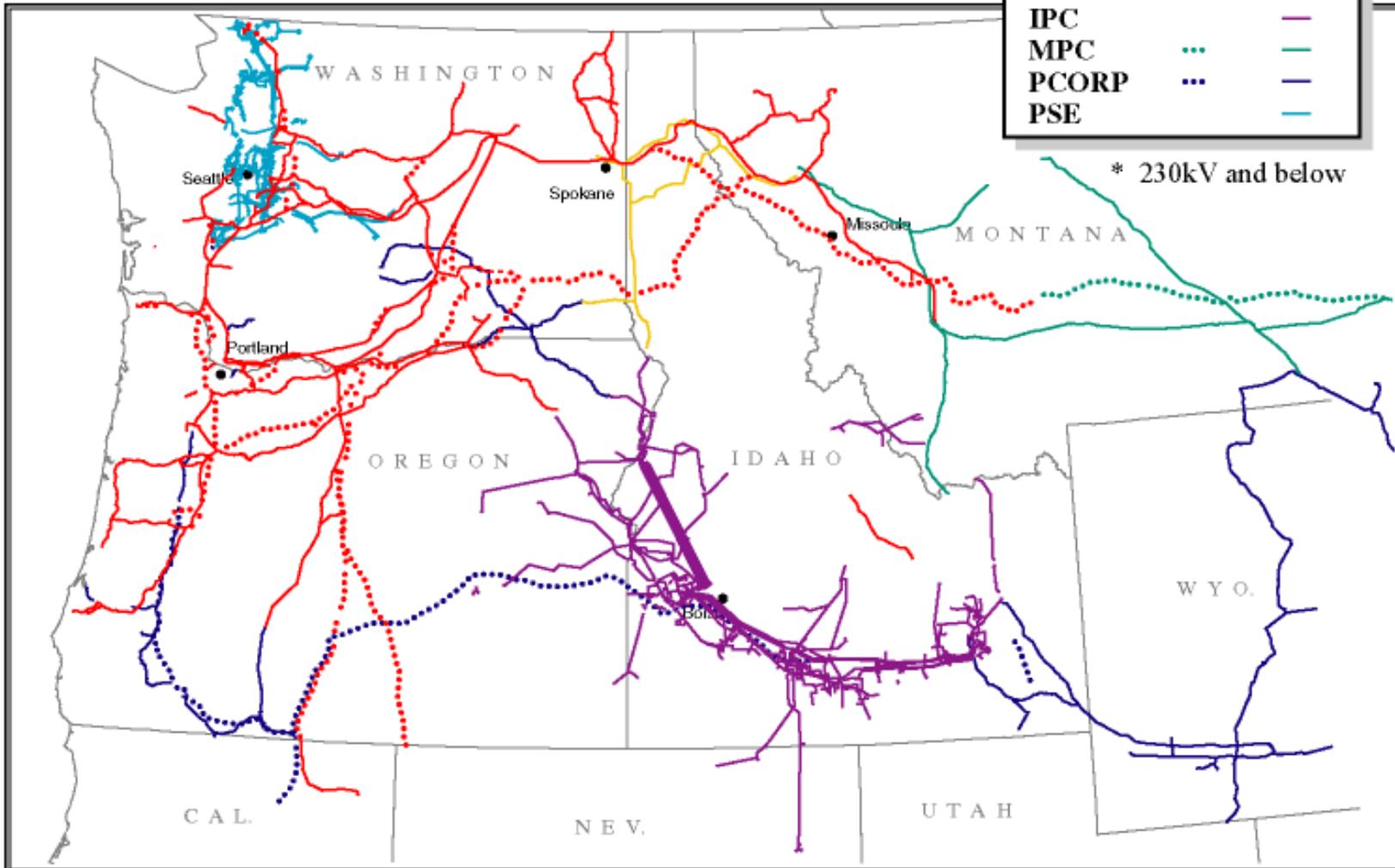
Residential Energy - Cost Components



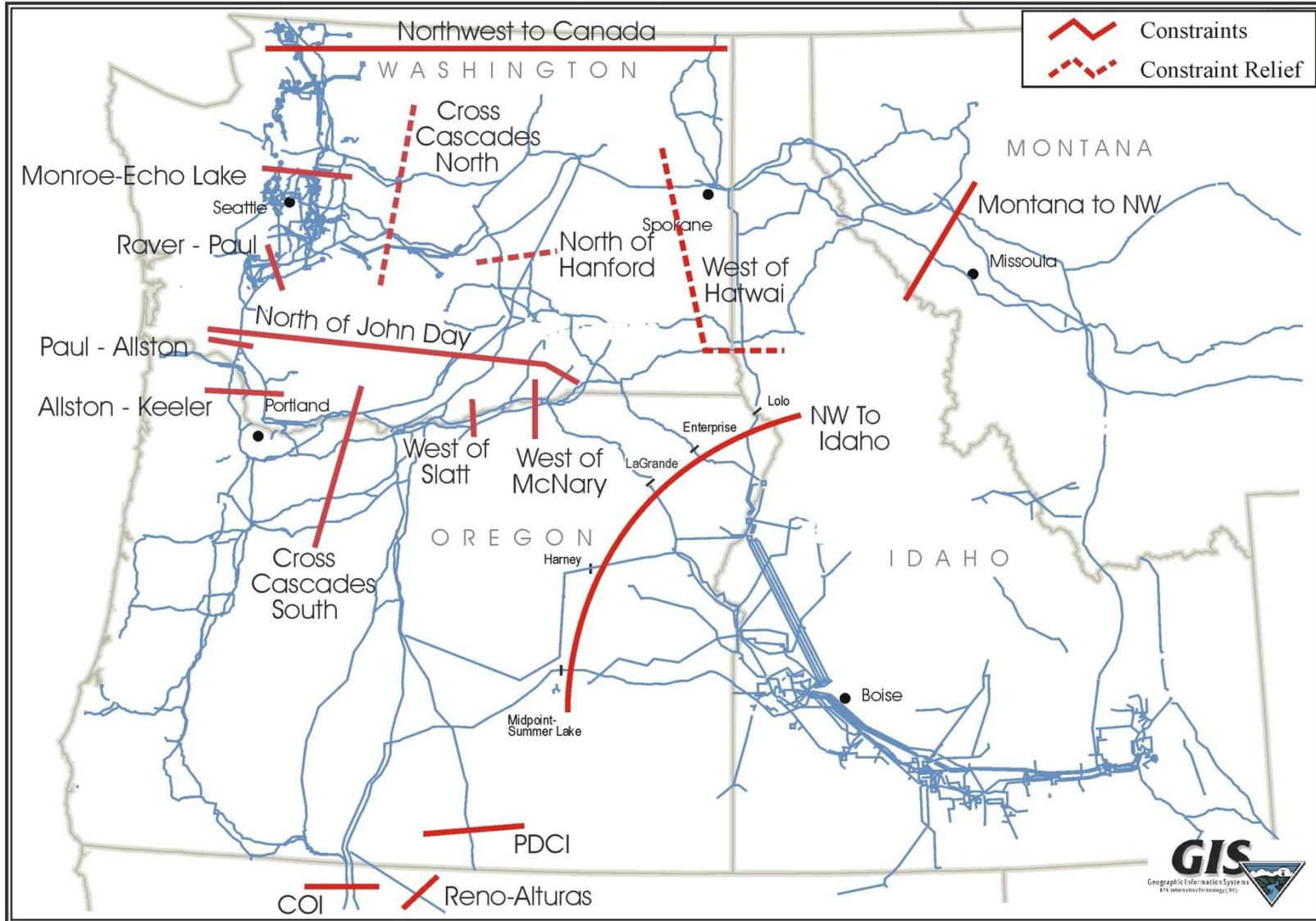
Combined Transmission Grid

	500kV	230kV*
AVISTA	—	—
BPA	•••	—
IPC	•••	—
MPC	•••	—
PCORP	•••	—
PSE	•••	—

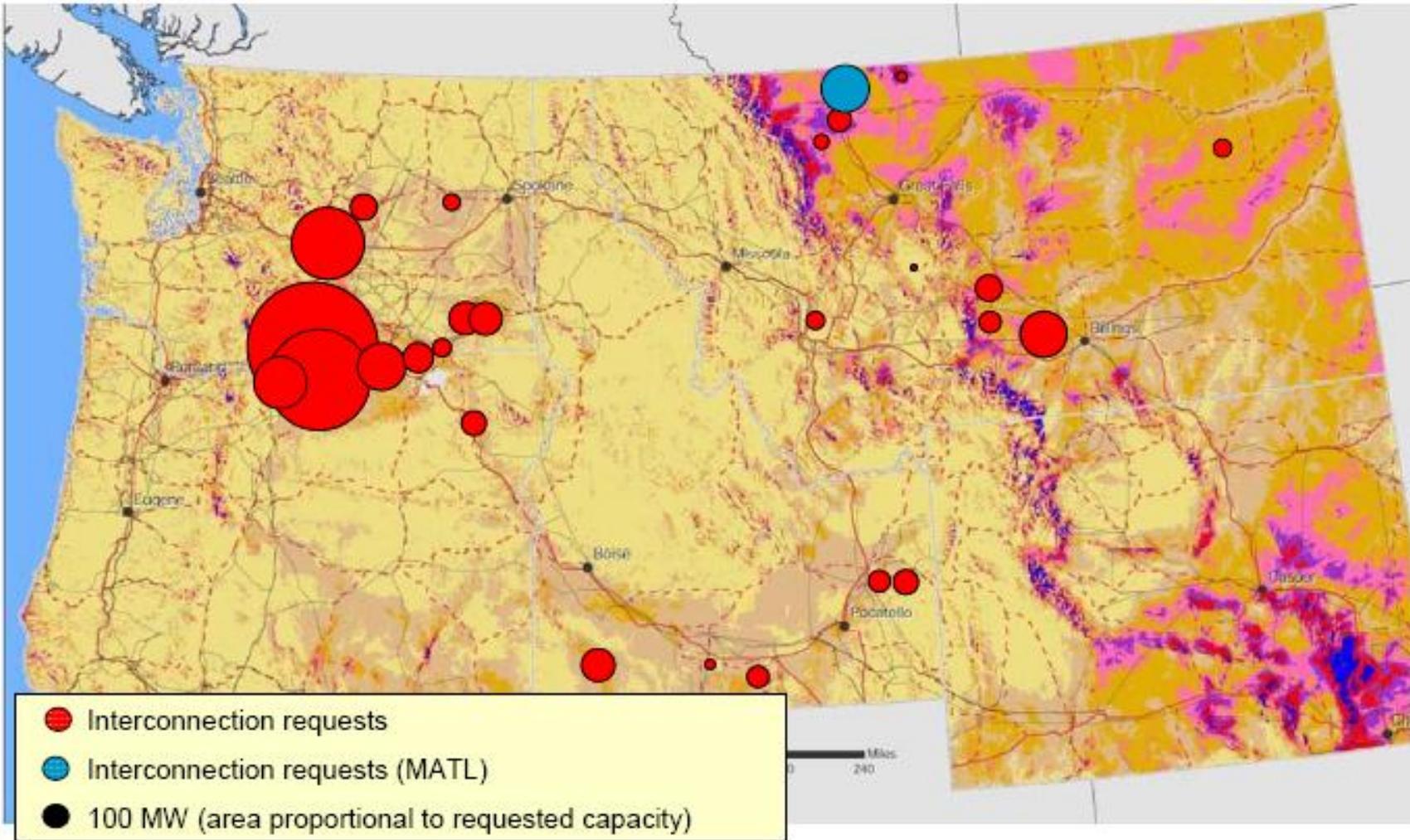
* 230kV and below



Northwest Transmission Constraints



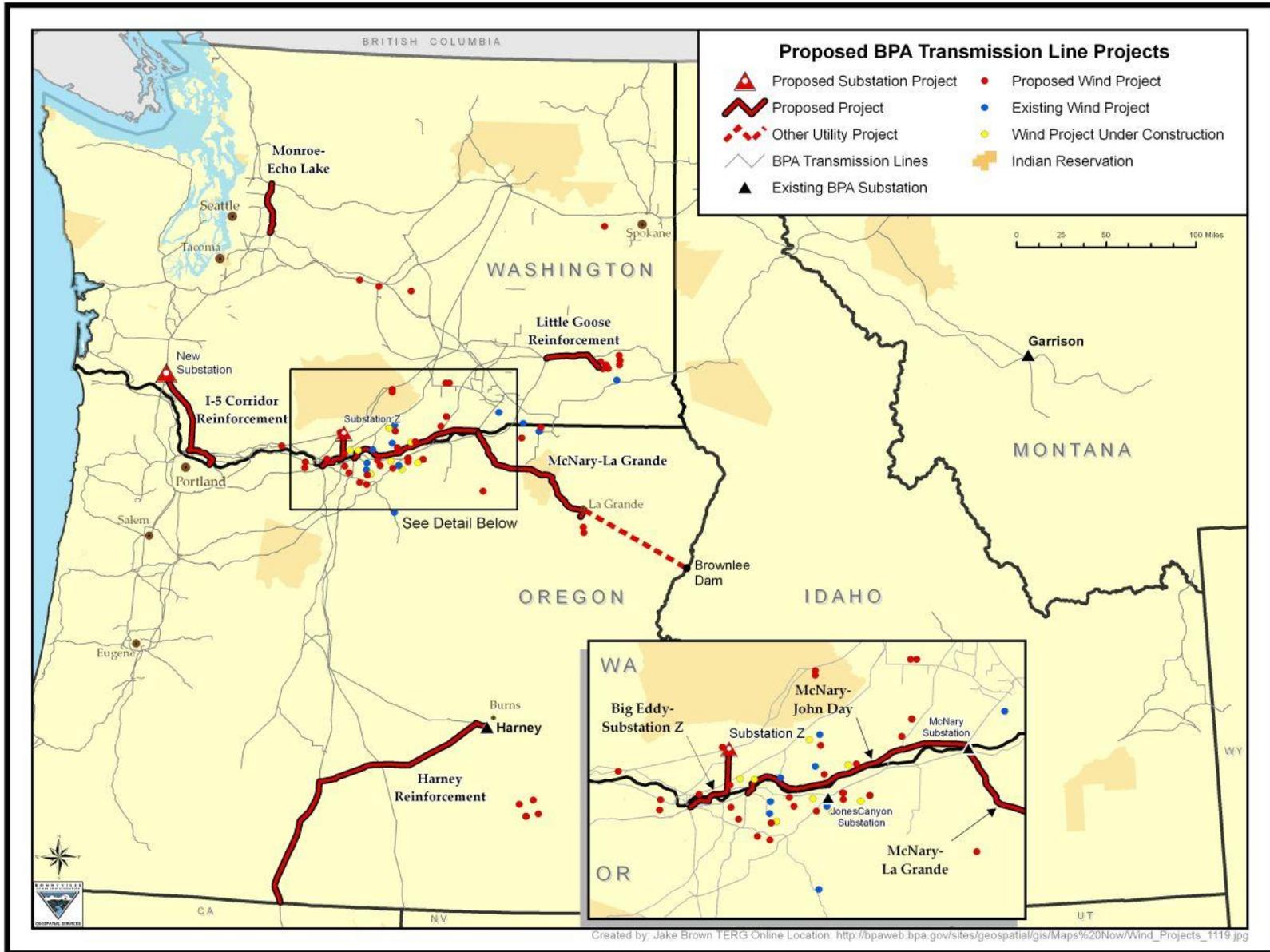
NW Wind Interconnection Requests



Network Open Season Cluster Study Results

Grouping	PTSA's	Demand (MW)
Authorize -- Pre NOS	4	55
Authorize	42	1,727
WOMGIP	45	2,034
I-5	2	150
Little Goose	5	200
WOMGIP & West of Garrison RAS	1	80
WOMGIP & LAGRANDE AREA	3	54
WOMGIP & I-5	7	585
WOMGIP & Little Goose	12	550
WOMGIP & I-5 & Little Goose	2	100
Harney	28	775
Northern Intertie	2	100
Total	153	6,410

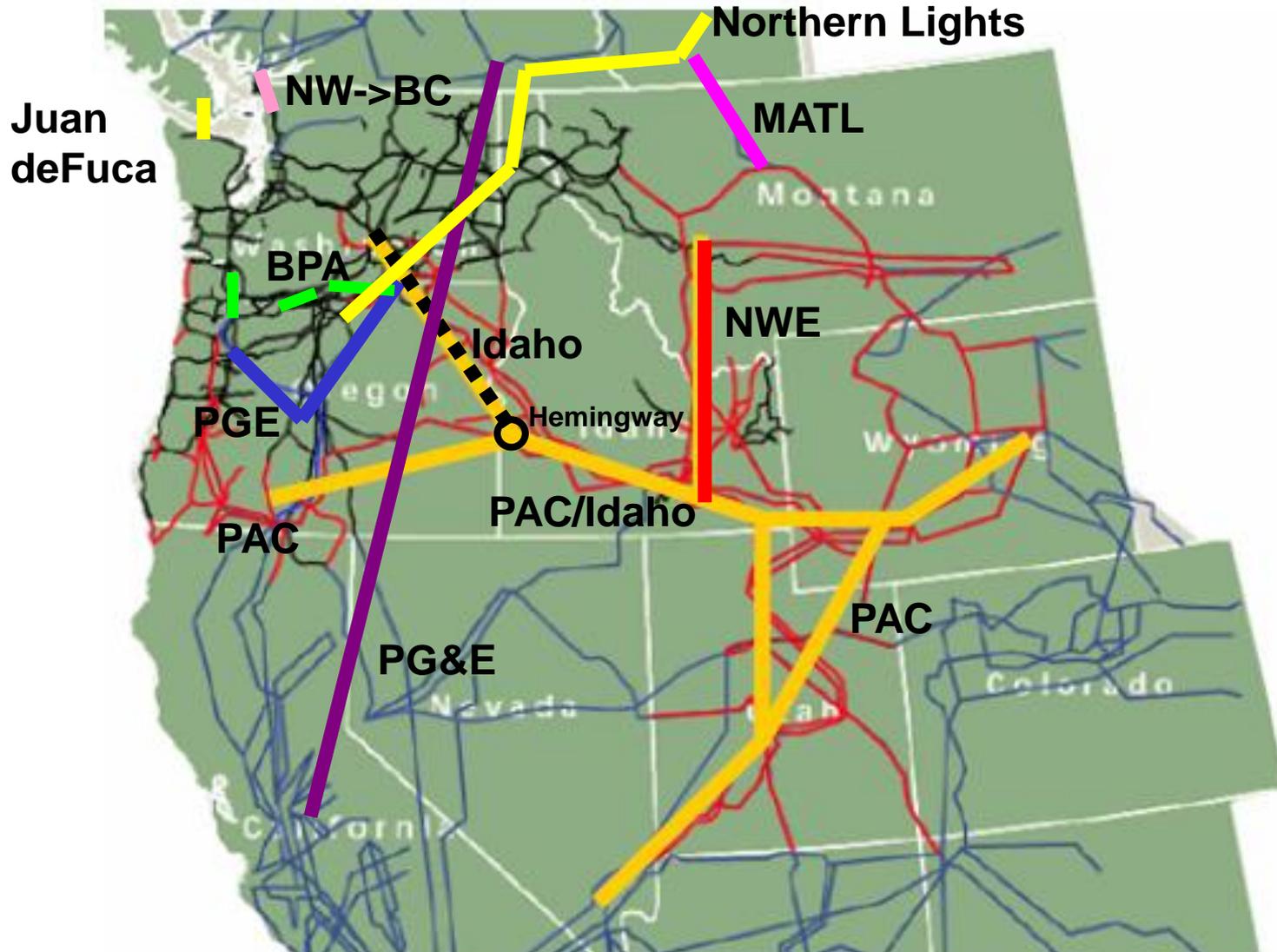




Created by: Jake Brown TERG Online Location: http://bpaweb.bpa.gov/sites/geospatial/gis/Maps%20Now/Wind_Projects_1119.jpg

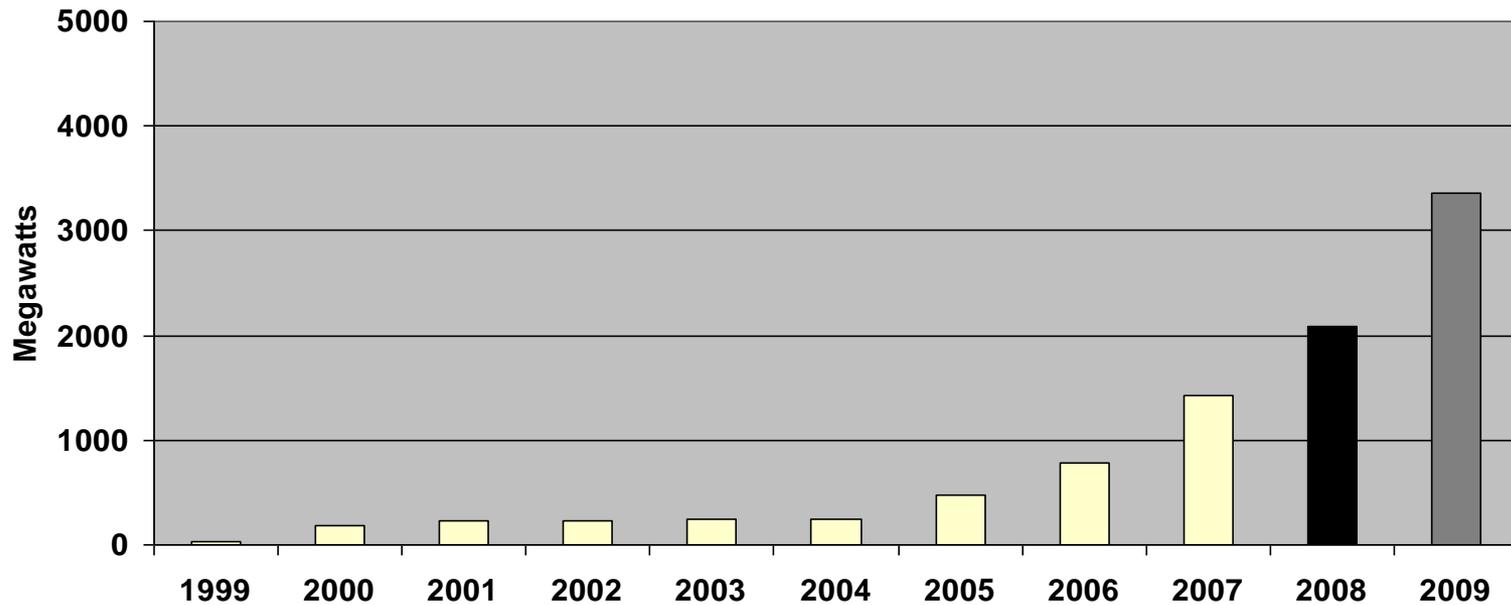


Proposed Projects by BPA and Others

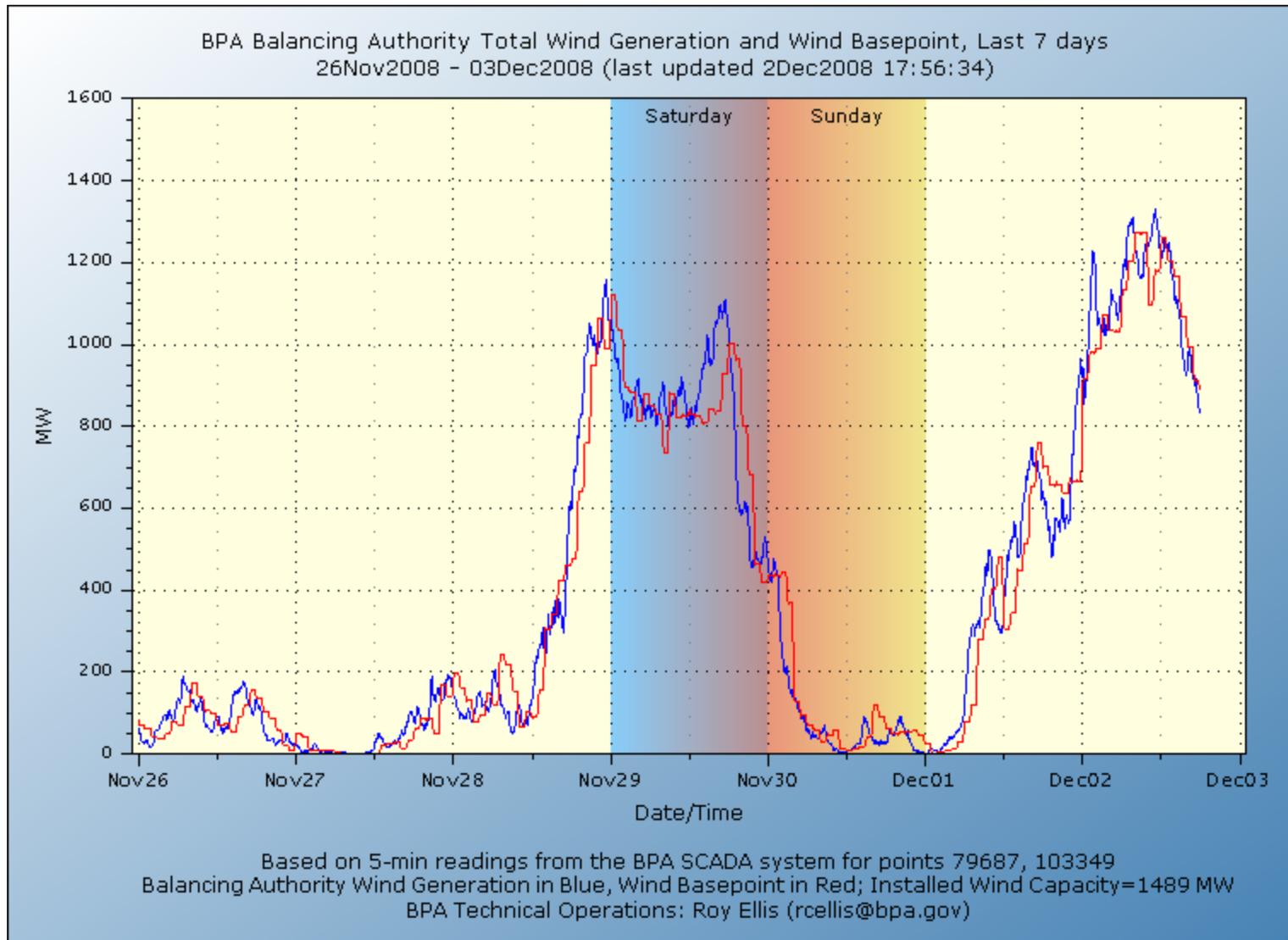


Explosive Wind Growth

Total Wind Generation on the BPA System



Wind is Hard to Predict



Potential Solutions

- Seeking third party services
- Limiting wind output to schedule for reliability
- Improving wind generation schedule accuracy
- Improving wind forecast accuracy
- Refining reserve requirements
- Improving Automatic Generation Control
- Dynamically scheduling wind
- Inventing new transmission scheduling practices
- Shifting the pattern of wind development
- Assigning receiving entity responsibility
- Working with other utilities
- Storage and Demand Response



Smart Grid

- **Smart Grid Objectives**
 - Enabling Customers
 - Advancing Grid Capabilities
 - Greening the Generation Mix
- **Demonstration Goals**
 - Demonstrate **Smart Grid** on a scale that allows confidence in the results
 - Help BPA and others move from current grid configuration to the **Smart Grid**
- BPA is developing a smart grid R&D pilot project. We have dedicated \$10 million over the next five years
- We are currently reaching out to potential technology and or funding partners for this project.

